Washington State Department of
Enterprise Services

SAP Business Warehouse/Business Intelligence Reporting

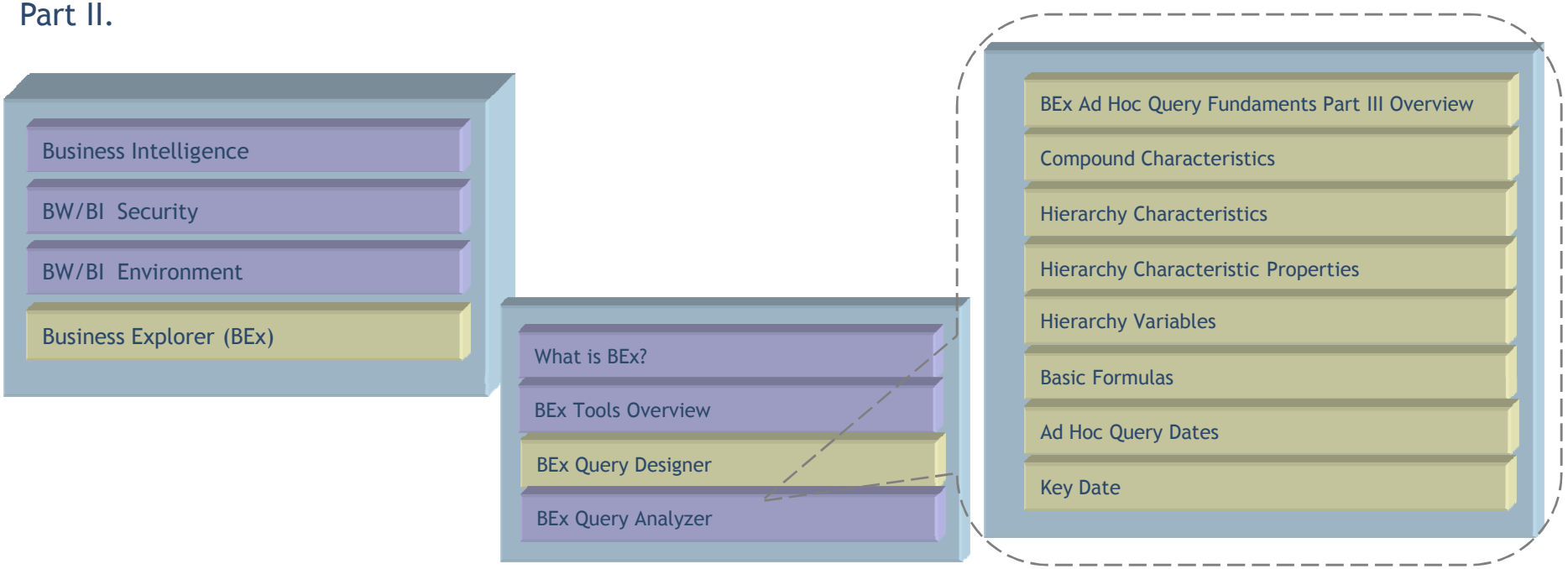
BEx Ad Hoc Query Fundamentals - Part III

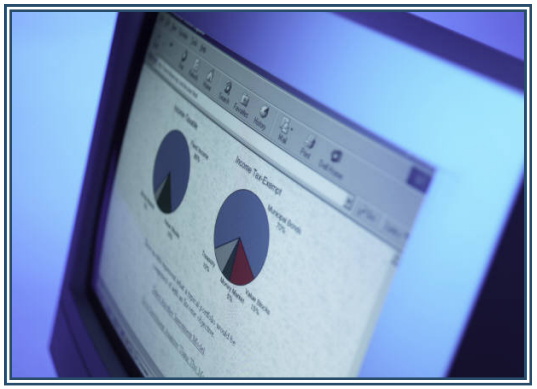
Washington State HRMS Business Warehouse/Business Intelligence (BW/BI)
BW/BI Power User Workshop Materials

General Topics – BW/BI Power Users

BEx Ad Hoc Query Fundamentals – Part III

The following BEx Ad Hoc Query Fundamentals – Part III section provides an overview of BEx Ad Hoc Query Fundamentals and builds on the key terms and concepts covered in BEx Query Fundamentals – Part I and Part II.

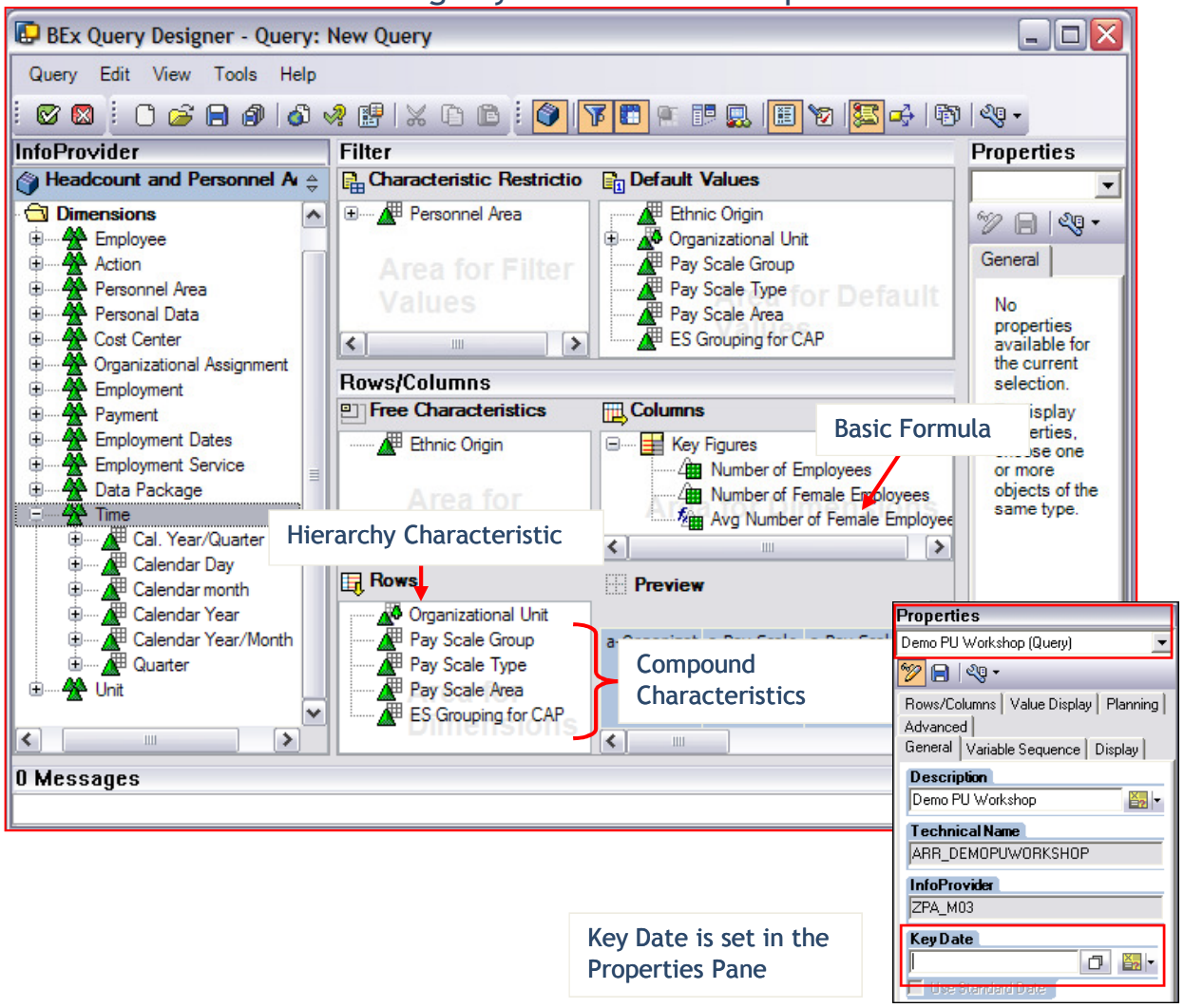




BEx Ad Hoc Query Fundamentals – Part III Overview

BEx Ad Hoc Query Fundamentals – Part III contains the following key terms and concepts:

- Compound Characteristics
- Hierarchy Characteristics
- Hierarchy Characteristic Properties
- Hierarchy Variables
- Basic Formulas
- Ad Hoc Query Dates
- Key Date



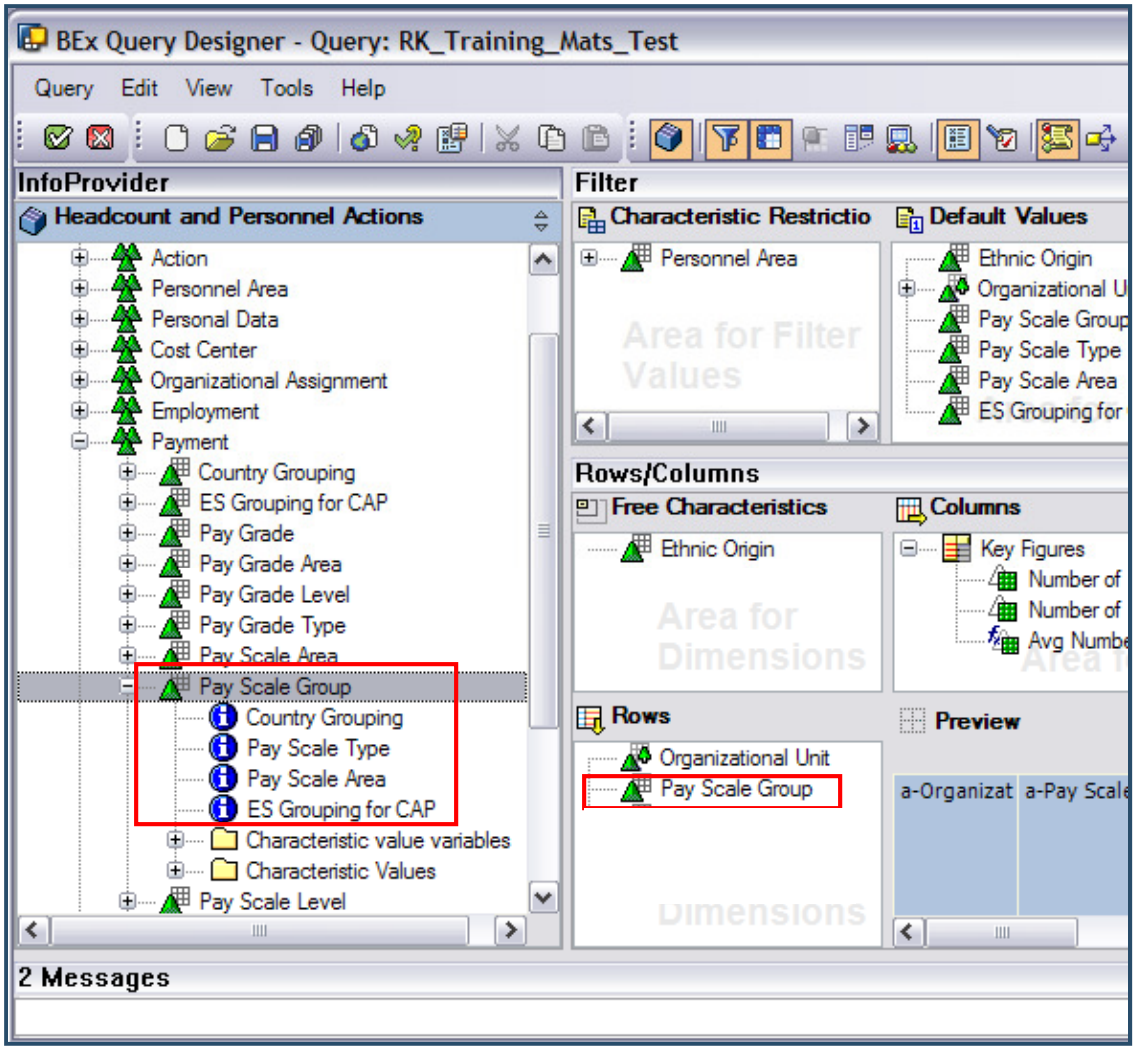
Compound Characteristics

Compound Characteristics are part of a group of Characteristics that are dependent on one another.

For example, the Pay Scale Group Characteristic is a Compound Characteristic that is compounded with the following Characteristics:

- Country Grouping
- Pay Scale Area
- Pay Scale Type
- ES Grouping for CAP (Employee Subgroup Grouping for Collective Agreement Provisions)

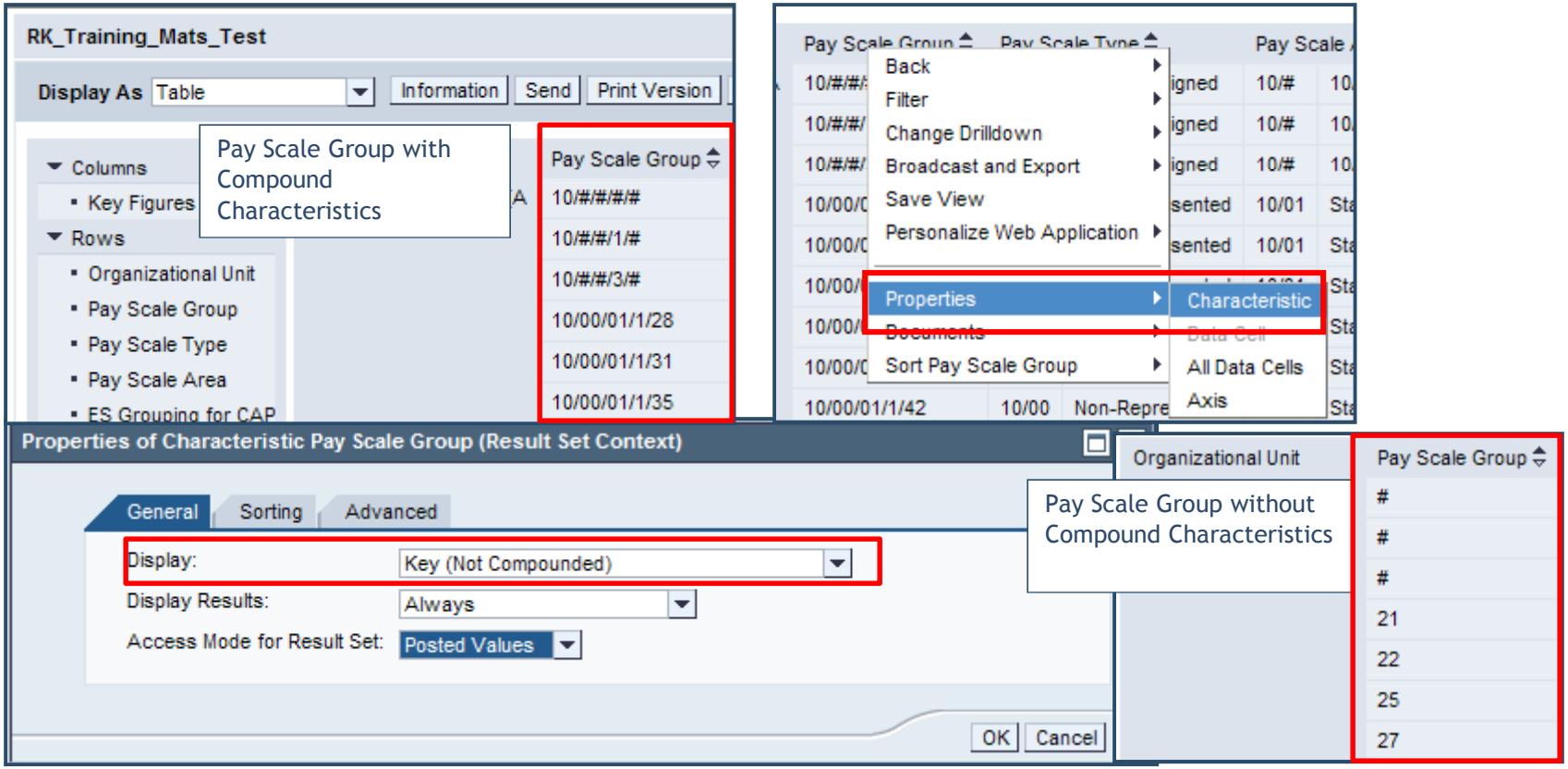
If Pay Scale Group is added to the query, all of its related Characteristics listed above are automatically included in the report results.



Compound Characteristics

In the example below, the Pay Scale Group Characteristic has been added to the ad hoc query. Country Grouping, Pay Scale Type, Pay Scale Area and ES Grouping for CAP are automatically added to the report results since they are Compounded with Pay Scale Group.

- To remove the Compound Characteristic data from the report, right click on “Pay Scale Group”, select “Properties” → “Characteristic”.
- In the Properties box, click on the “Display” dropdown arrow and select one that says “Not Compounded). This will remove the data for the Compound Characteristic from the results.



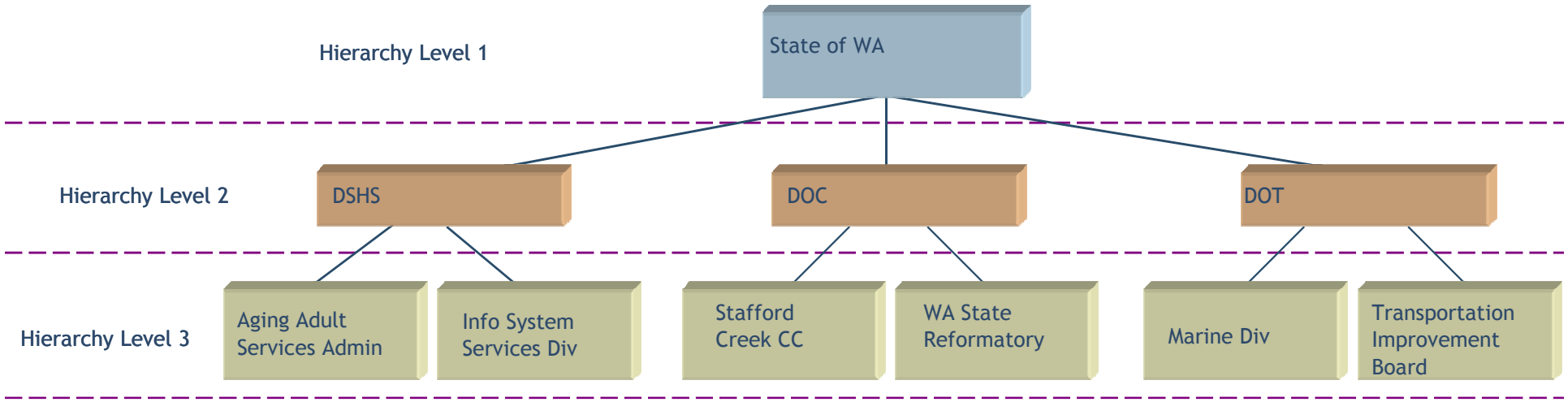
Hierarchy Characteristics

Hierarchy Characteristics are Characteristics arranged in a tree structure. In BW/BI , the only hierarchy is the Organizational Unit Hierarchy.

The Organizational Unit Hierarchy allows the user to select a "parent" Organizational Unit (such as State of WA or DOC in the example below) and include all the "child" Organizational Units that are beneath it when the ad hoc query is run.

The example below represents the Organizational Unit Hierarchy structure with each box representing a different Organizational Unit. These Organizational Units are arranged hierarchically with the State of Washington being the highest level, and Agencies below.

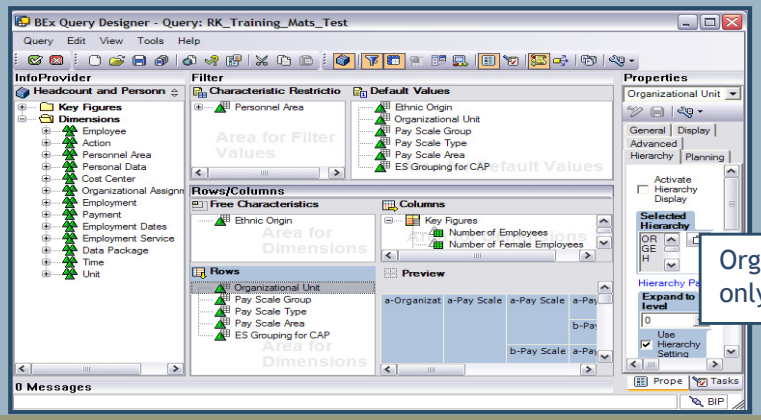
Sample Organizational Unit Hierarchy Structure



Hierarchy Characteristics

The example below shows the difference between using the Organizational Unit Characteristic and the Organizational Unit Characteristic with the Hierarchy in the ad hoc query.

Organizational Unit in Query (w/out Hierarchy)

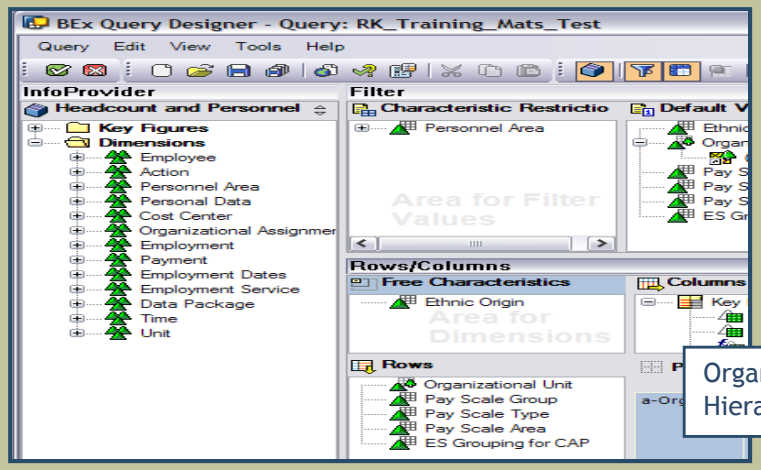


Query Results for Organizational Unit (w/out Hierarchy)

Organizational Unit only

Organizational Unit	Pay Scale Group	Pay Scale Type		Pay Sc
30000510	10/00/01/3/58	10/00	Non-Represented	10/01
30000515	10/00/01/3/66	10/00	Non-Represented	10/01
DA	10/#/#/#/#	10/#	10/Not assigned	10/#
	10/#/#/3/#	10/#	10/Not assigned	10/#
	10/00/01/1/44	10/00	Non-Represented	10/01
	10/00/01/1/48	10/00	Non-Represented	10/01
	10/00/01/1/50	10/00	Non-Represented	10/01
	10/00/01/1/54	10/00	Non-Represented	10/01

Organizational Unit Hierarchy in Query



Query Results for Organizational Unit Hierarchy

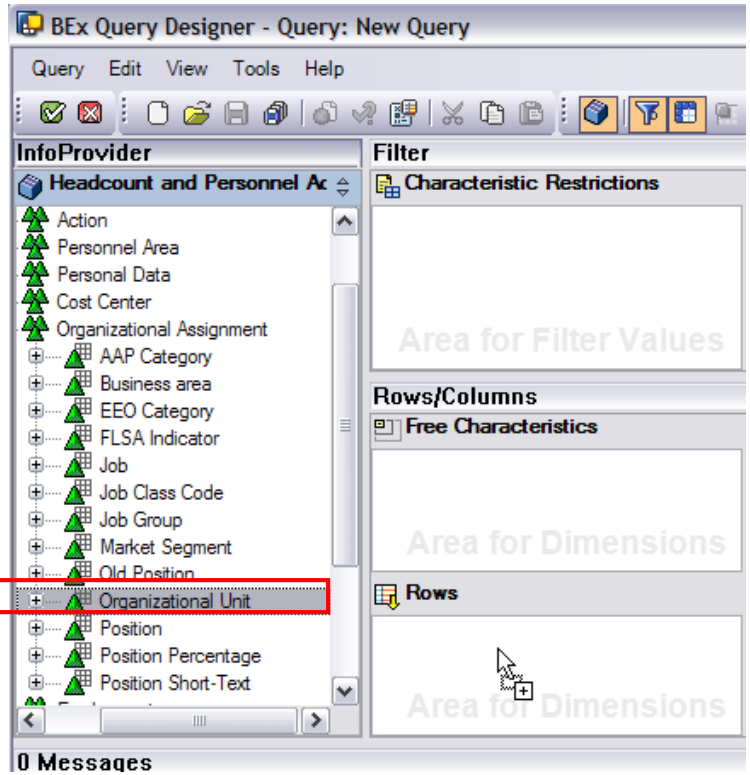
Organizational Unit Hierarchy

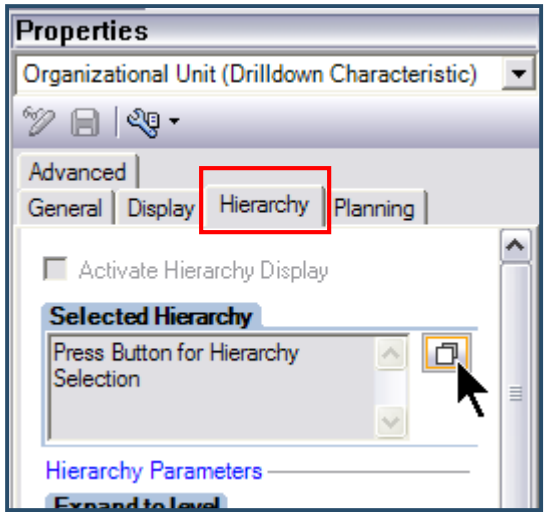
Organizational Unit	Pay Scale Group	Pay Scale Type		Pay Scal
▼SOW	10/00/01/3/55	10/00	Non-Represented	10/01
	10/00/01/3/56	10/00	Non-Represented	10/01
	10/00/01/3/58	10/00	Non-Represented	10/01
	10/00/01/3/62	10/00	Non-Represented	10/01
	10/00/01/3/66	10/00	Non-Represented	10/01
	10/00/01/3/70	10/00	Non-Represented	10/01
	10/00/07/3/27G	10/00	Non-Represented	10/07
	10/00/07/3/35G	10/00	Non-Represented	10/07
	10/00/07/3/41G	10/00	Non-Represented	10/07
	10/01/01/3/58	10/01	WFSE	10/01
▶111	10/#/#/#/#	10/#	10/Not assigned	10/#
	10/#/#/1/#	10/#	10/Not assigned	10/#

Hierarchy Characteristics

To make the Organizational Unit Characteristic a Hierarchy:

1. Drag&Drop the Organizational Unit Characteristic from the Organizational Assignment Dimension to the Rows section of the query.
2. From the Properties pane for Organizational Unit, select the Hierarchy tab and click the matchcode button.





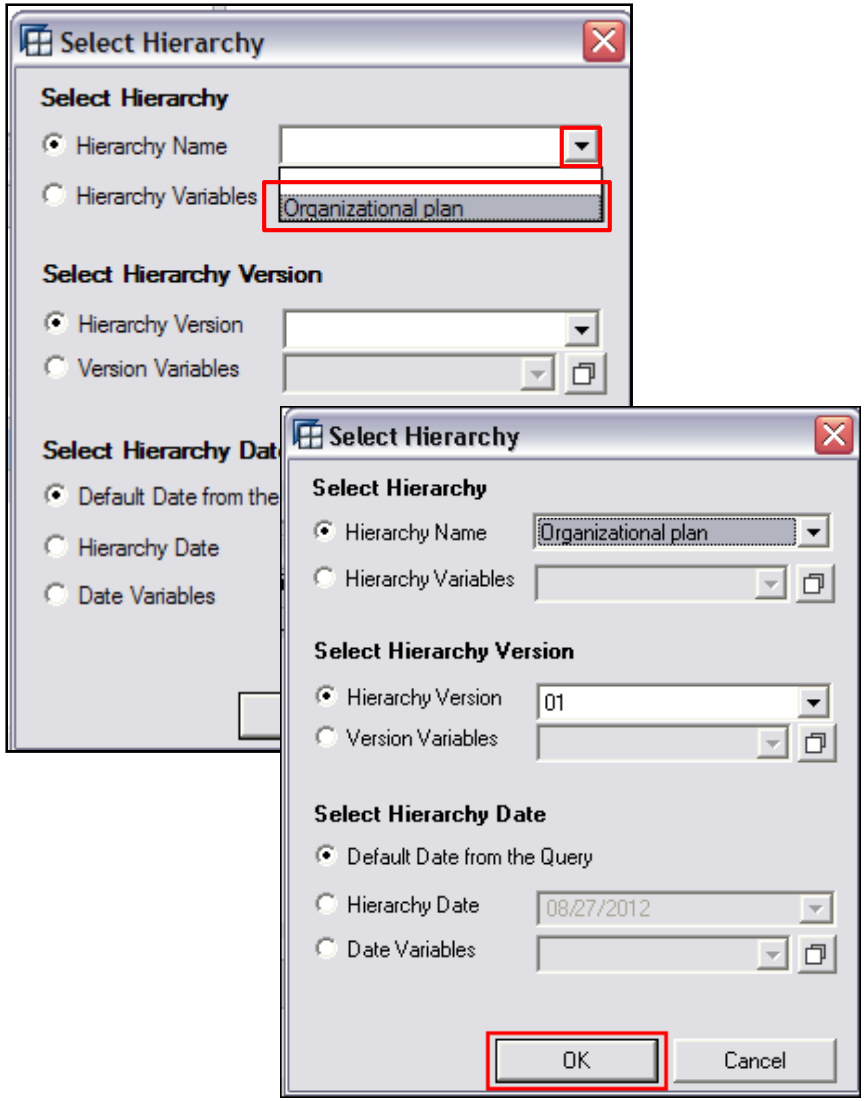
Hierarchy Characteristics

To make the Organizational Unit Characteristic a Hierarchy:

3. Click on the dropdown in the Hierarchy Name text box and select the Hierarchy (there is only one).

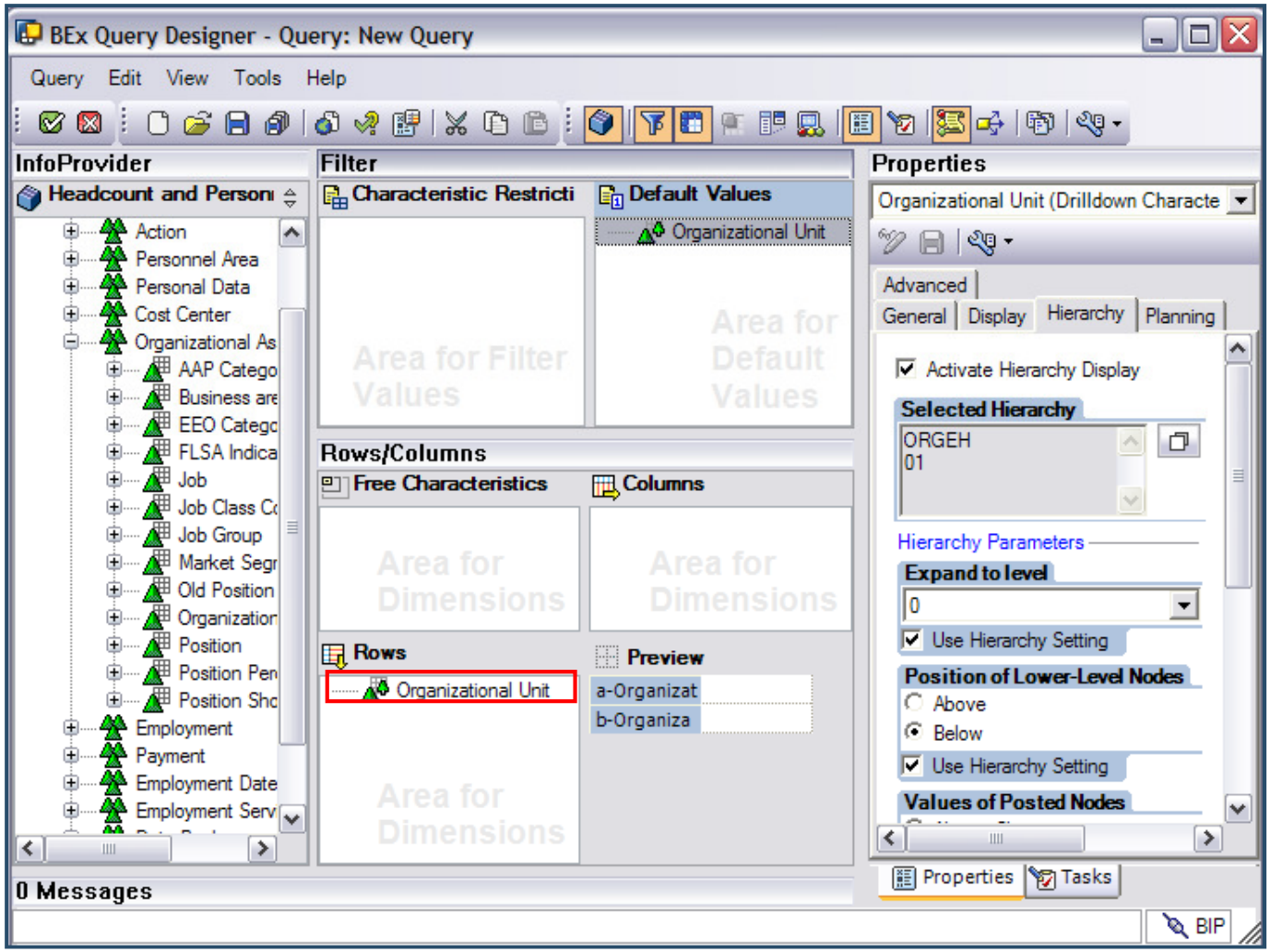
4. Version and Date have default values. These can be left as default.

5. Click OK.



Hierarchy Characteristics

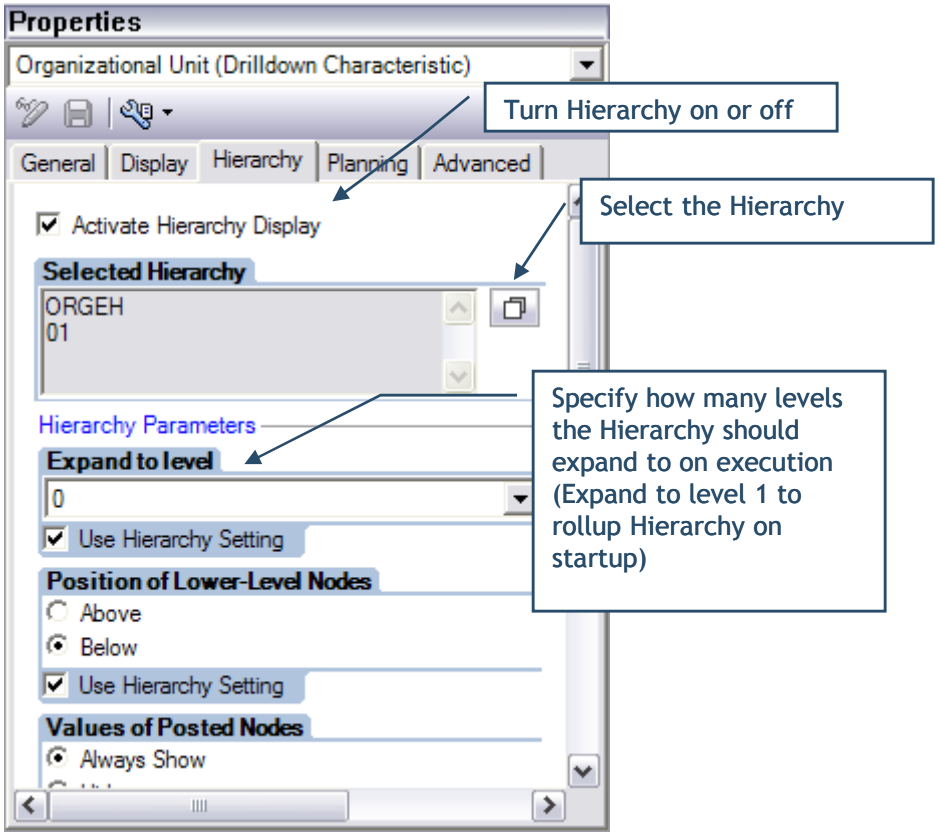
Result: The Organizational Unit Characteristic has been changed to Organizational Unit Hierarchy.

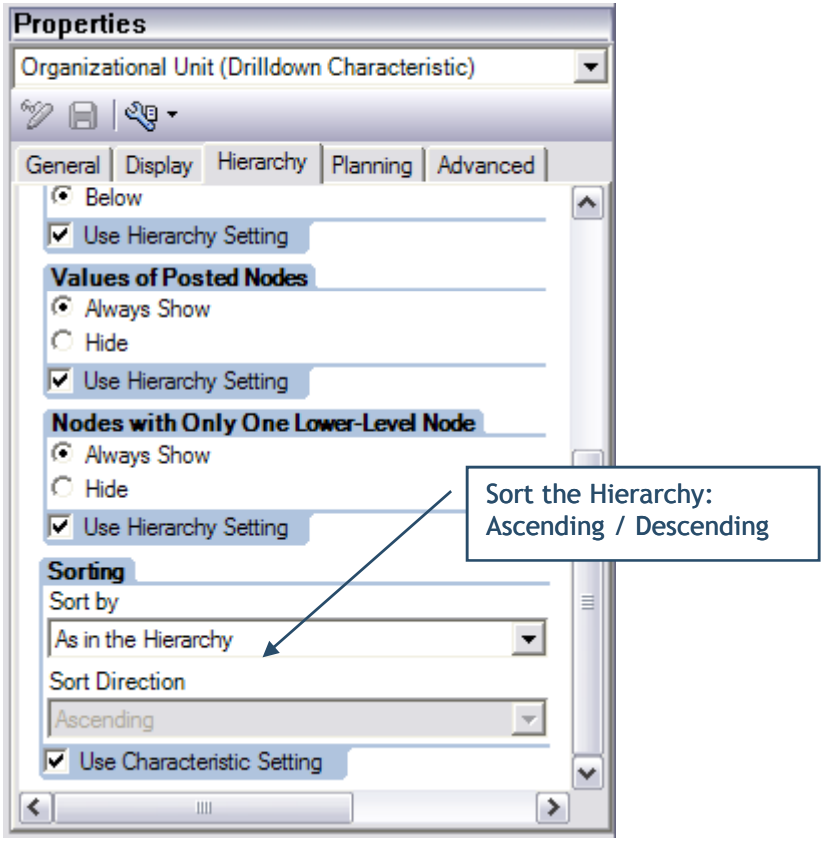


Hierarchy Characteristic Properties

The Hierarchy Characteristic Properties become available when a Hierarchy becomes enabled.

The example below provides a brief description of the Display Hierarchy property settings (other property settings are defined in the Characteristics Properties section):





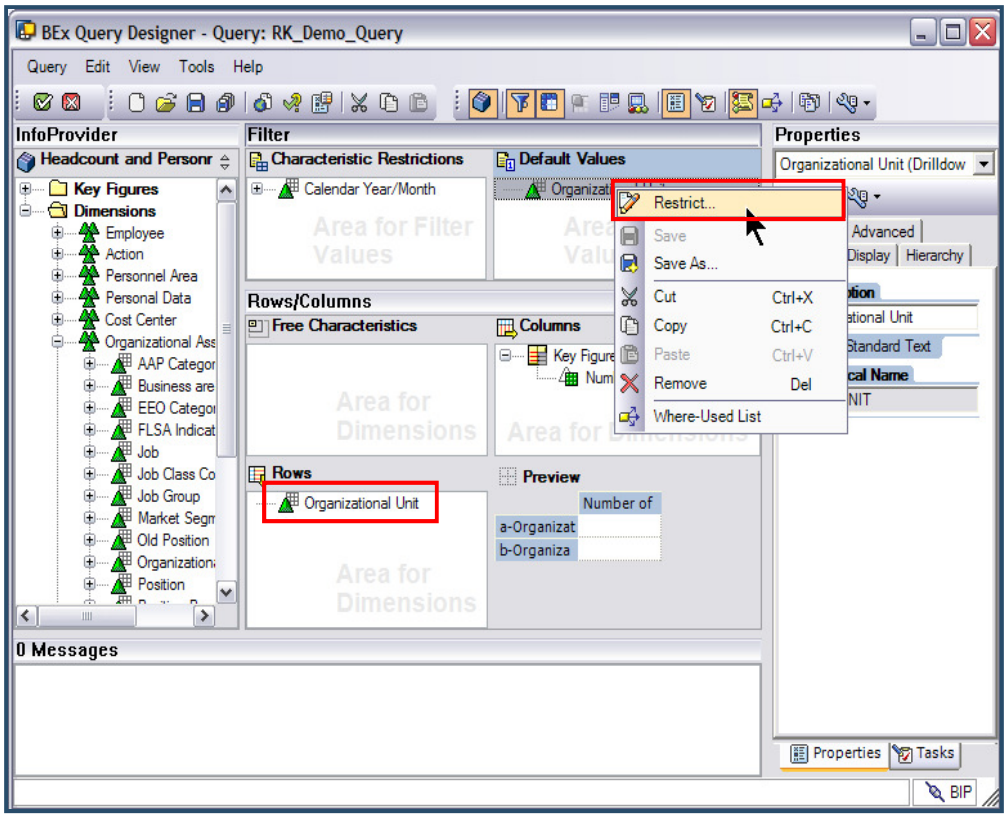
Hierarchy Variables

Hierarchy Variables are Variables added to a Hierarchy Characteristic that prompt the user to enter a Hierarchy Variable prior to running a query. The Organizational Unit Hierarchy is the only Hierarchy available in BW/BI.

The example below uses the Headcount and Personnel Actions InfoProvider to show how to add the Organizational Unit Hierarchy Variable to the Organizational Unit Hierarchy. This will prompt the user to enter an Organizational Unit Hierarchy prior to running a query.

To add a Hierarchy Variable to a Hierarchy:

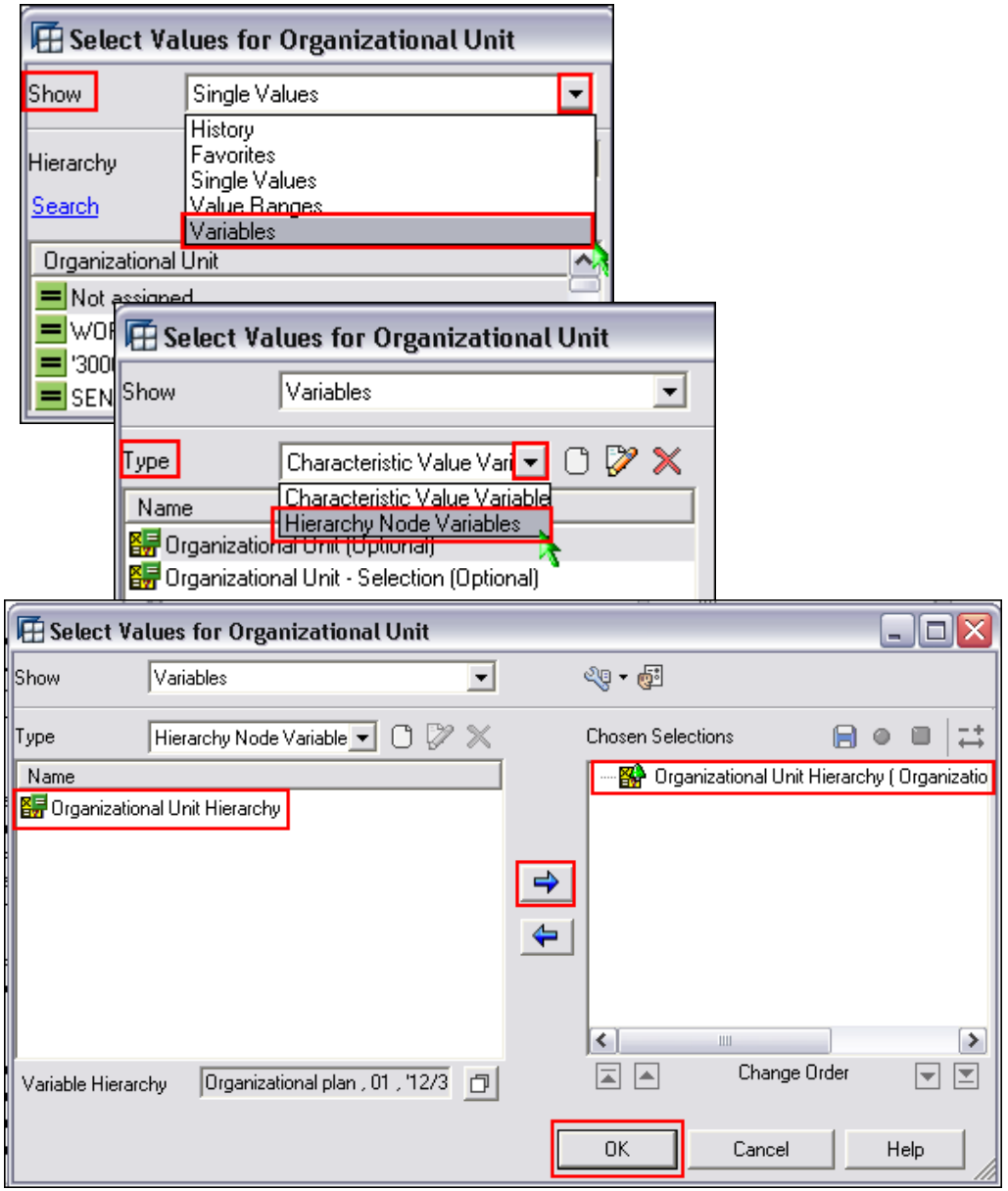
1. Drag&Drop the Organizational Unit Characteristic to the Rows section of the query.
2. Right click on the Organizational Unit Characteristic in the Default Values section to open the Context Menu.
3. Select Restrict.



Hierarchy Variables

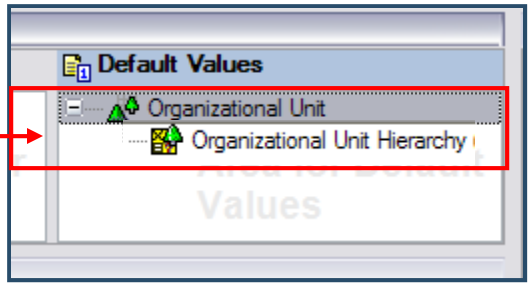
Result: The Selection Values for Organizational Unit screen will be displayed.

4. From the “Show” dropdown, select “Variables”.
5. From the “Type” dropdown, select “Hierarchy Node Variables”:
6. Select “Organizational Unit Hierarchy”.
7. Click the arrow to “Move to Selection”.
8. Click OK.

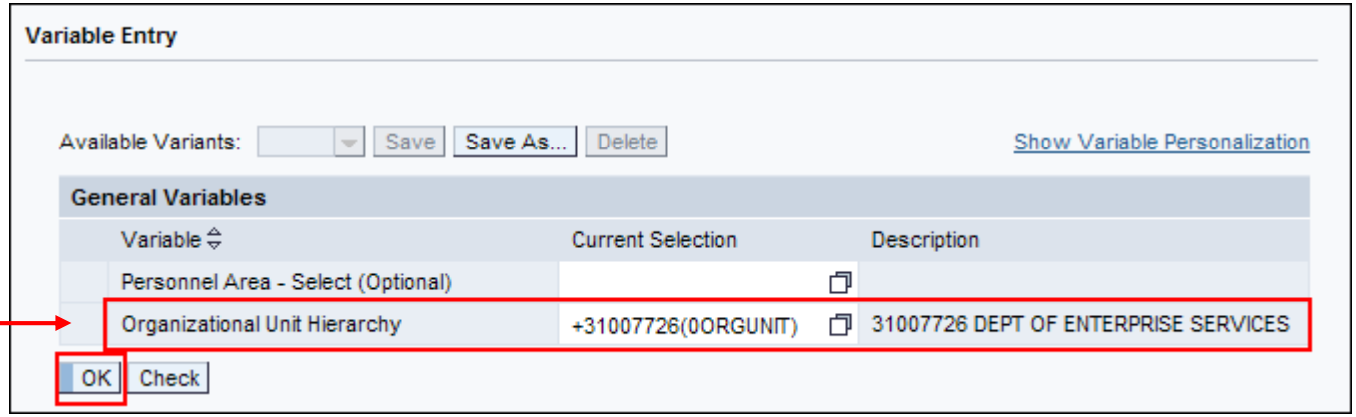


Hierarchy Variables

Result: The Organizational Unit Hierarchy variable has been added to the Organizational Unit Characteristic



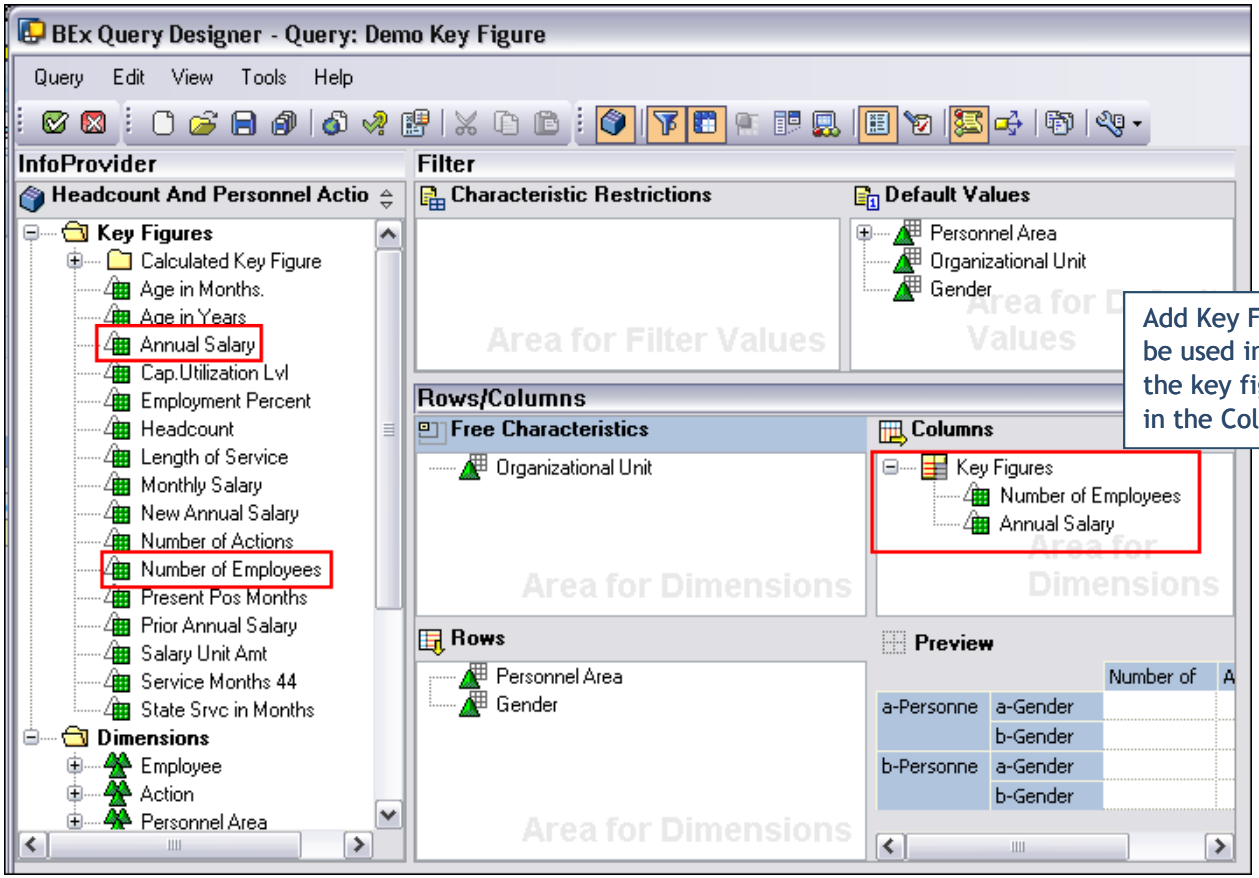
The user will be prompted to enter an Organizational Unit Hierarchy variable prior to running the ad hoc query.



Basic Formulas

Formulas are calculations used to create custom Key Figures in the ad hoc query. Formulas use existing Key Figures to calculate a new Key Figure.

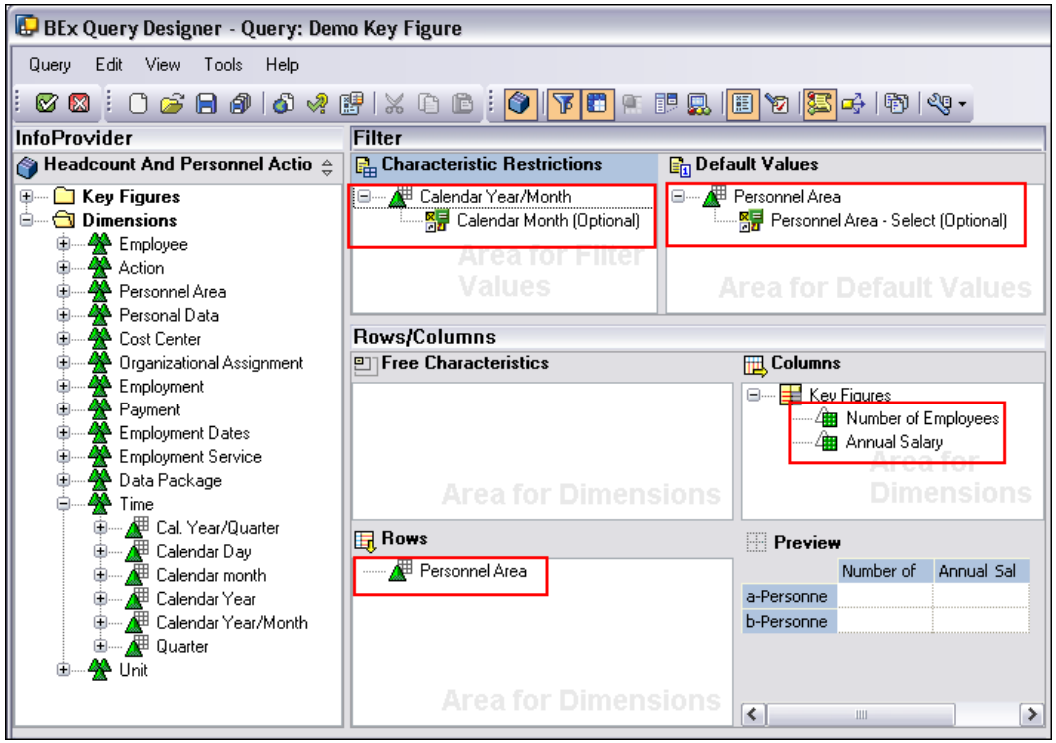
Key Figures that are used in a formula must be added to the Key Figures structure. For example, to create a basic formula that calculates the Average Annual Salary of employees, the Number of Employees and Annual Salary Key Figures must be added to the Key Figures structure of the query.



Basic Formulas

The example below uses the Headcount InfoProvider to show how to create a formula that will calculate the average salary of employees in a Personnel Area:

1. Drag&Drop the Annual Salary Key Figure to the Columns section of the query.
2. Drag&Drop the Number of Employees Key Figure to the Columns section of the query.
3. Drag&Drop the Personnel Area Characteristic to the Rows section.
4. Add the “Personnel Area – Select (Optional)” Variable to the Personnel Area Characteristic in the Default Values section.
5. Drag&Drop the Calendar Year/Month Characteristic to the Filter Section.
6. Add the Calendar Month (Optional) variable to the Calendar Year/Month Characteristic in the Filter Section



Basic Formulas

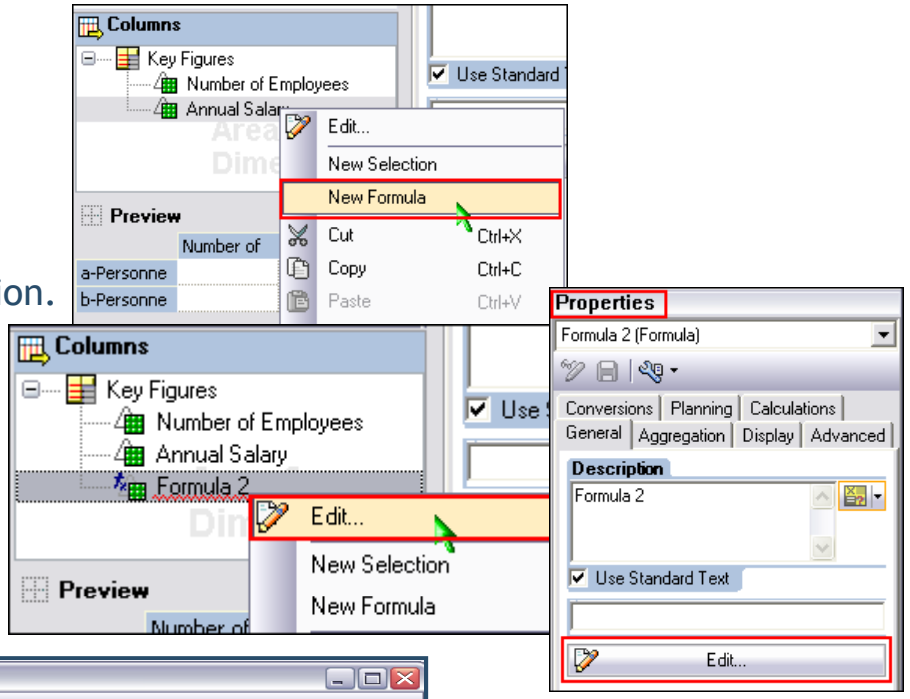
5. Right mouse-click the any object in the Columns section to open the Context Menu.

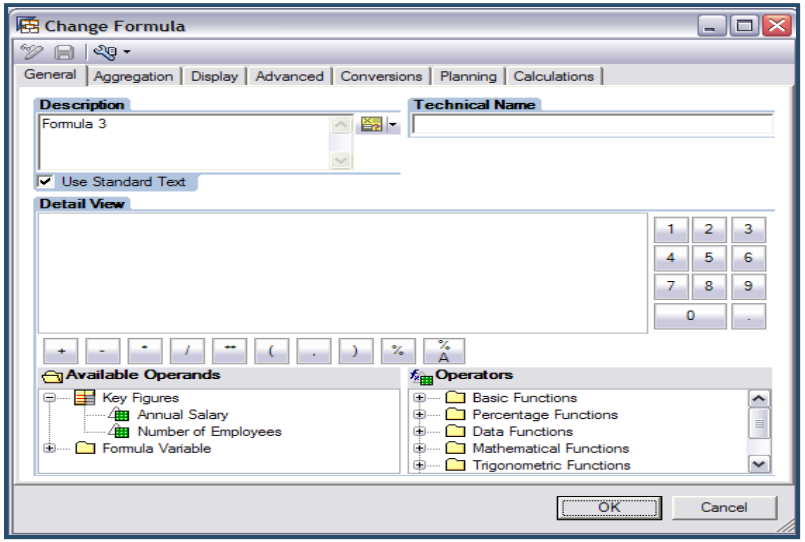
6. Select New Formula.

Result: The New Formula is added to the Column section.

7. Right click the new Formula and select “Edit”.
OR Select the New Formula and click “Edit” in the Properties pane.
OR double click new Formula.

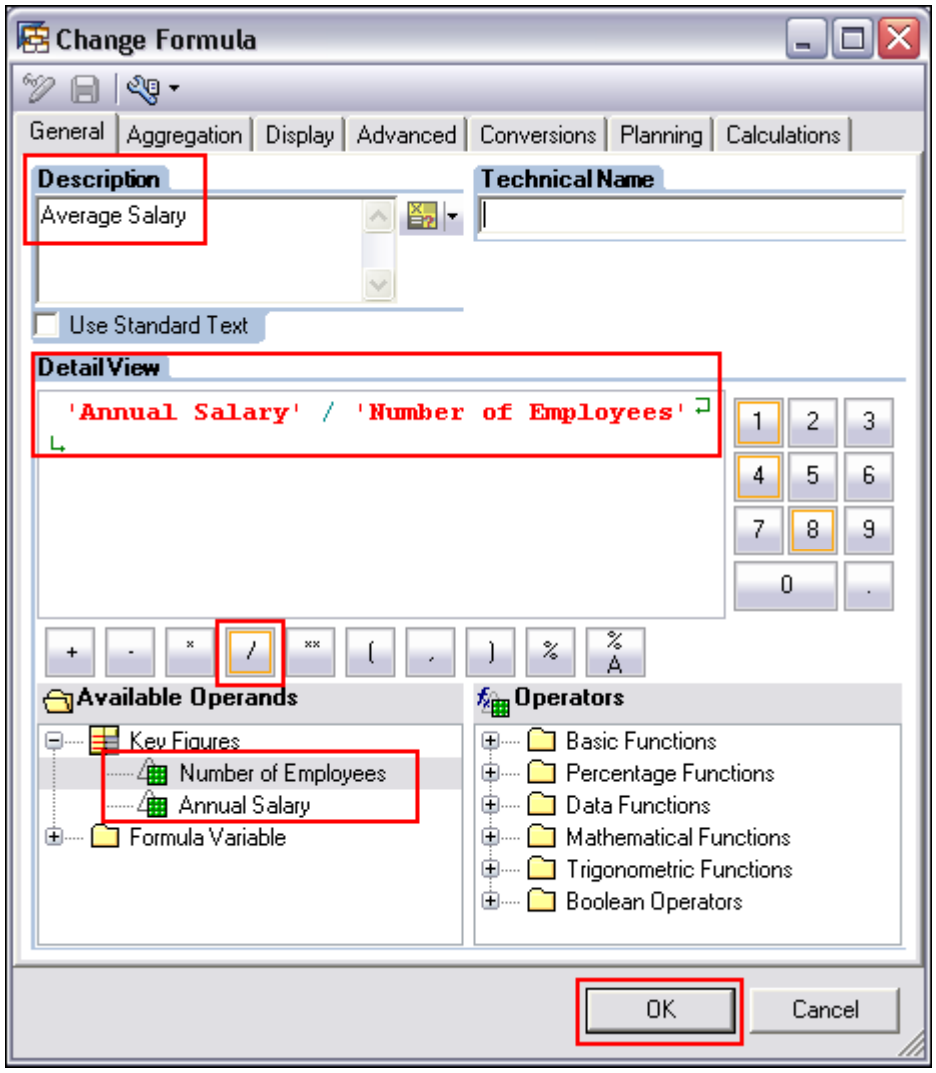
7. The “Change Formula” box is displayed.





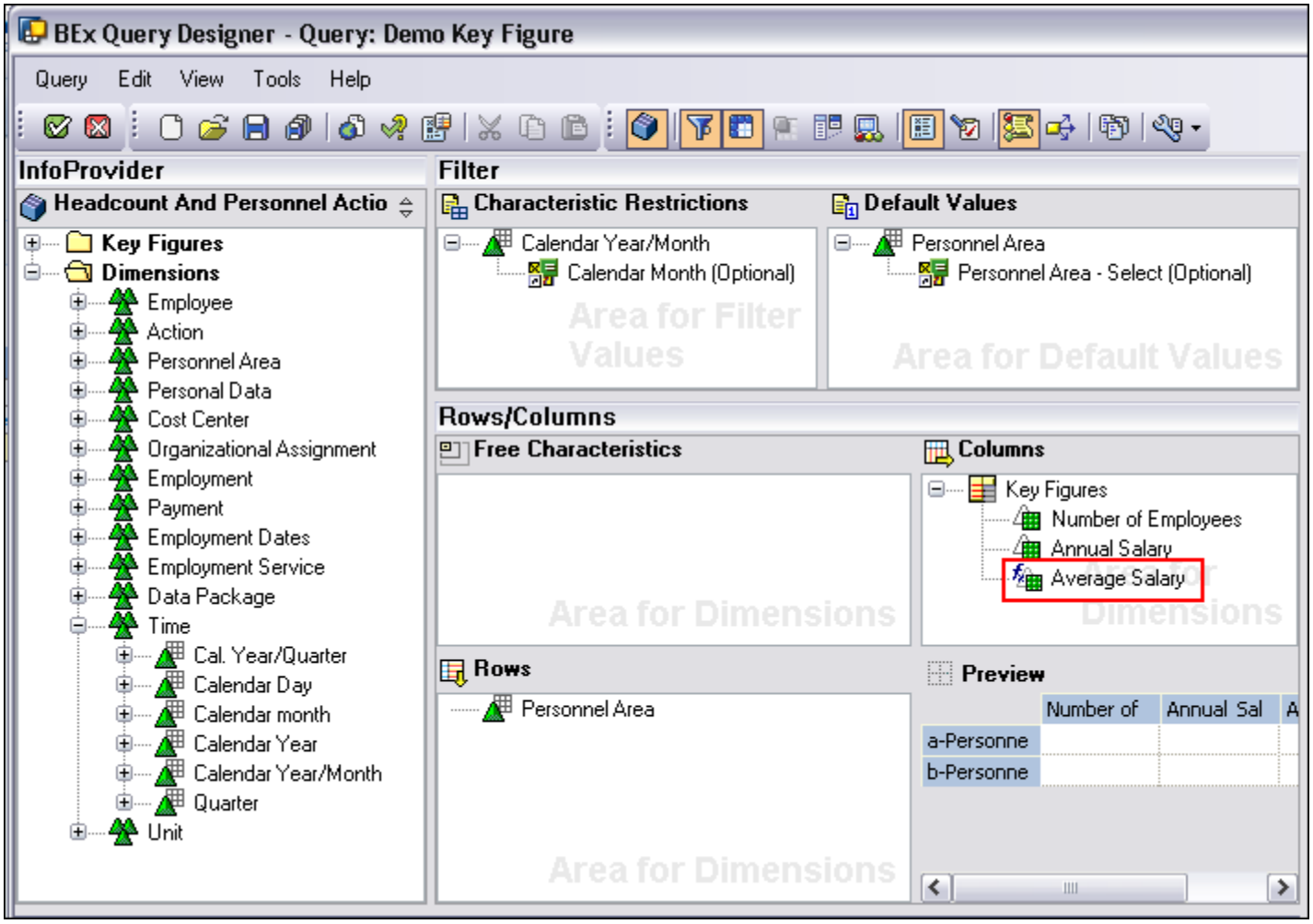
Basic Formulas

9. Enter a description for the formula (in this example, “Average Salary”) in the description field.
10. Double click Annual Salary key figure to add it to the formula.
11. Click the Divide by symbol.
12. Double click the Number of Employees key figure to add it to the formula
13. Click OK to close the Change Formula screen



Basic Formulas

Result: A new key figure has been added to the ad hoc query that will calculate the Average Salary of employees by Personnel Area:

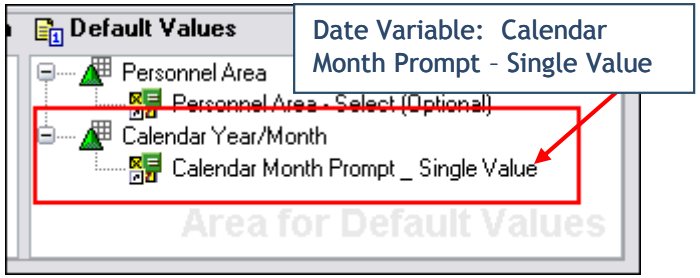


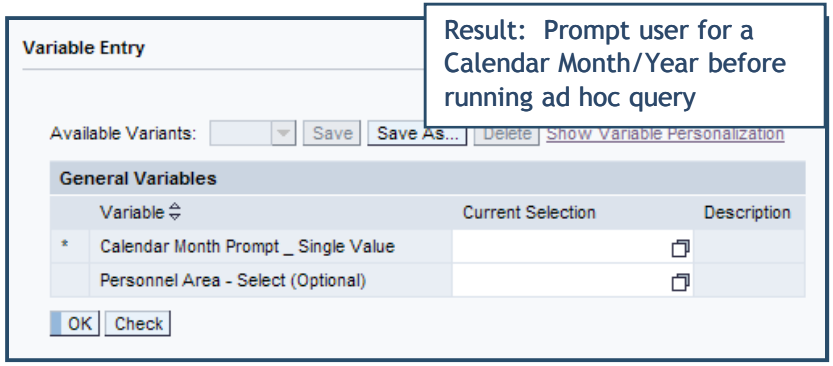
Ad Hoc Query Dates

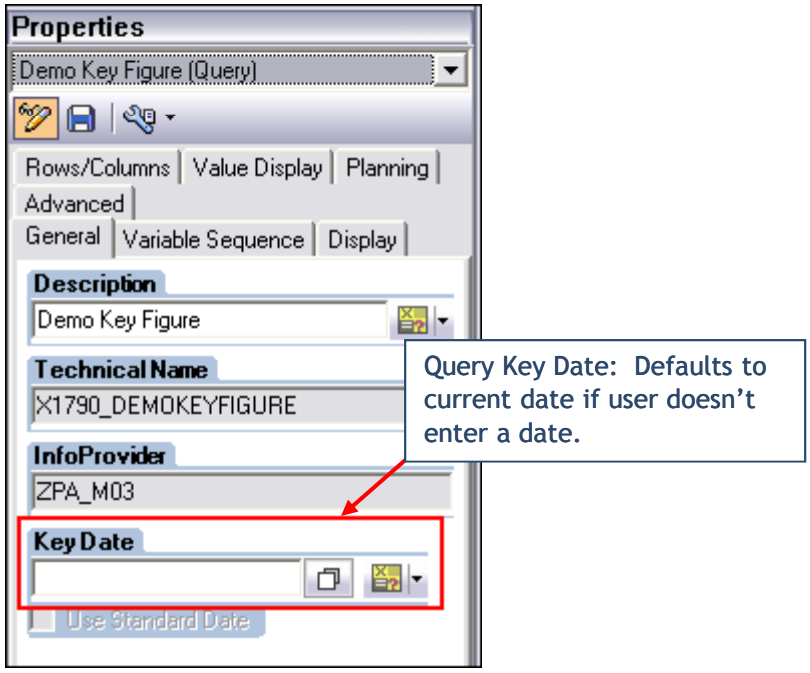
Date Characteristics are InfoObjects that can be added to a query from the Time dimension. Date Characteristics such as Calendar Days or Calendar Month/Year can be added to a query in Rows, Columns, Free Characteristics or Filters.

When a Date Characteristic is used with a variable, Characteristics and Attributes in the query could report two different time periods:

- Characteristics in the query will be "as of" the date value input by the user in the Date Variable.
- Attributes in the query will be "as of" the Key Date set in the query properties.





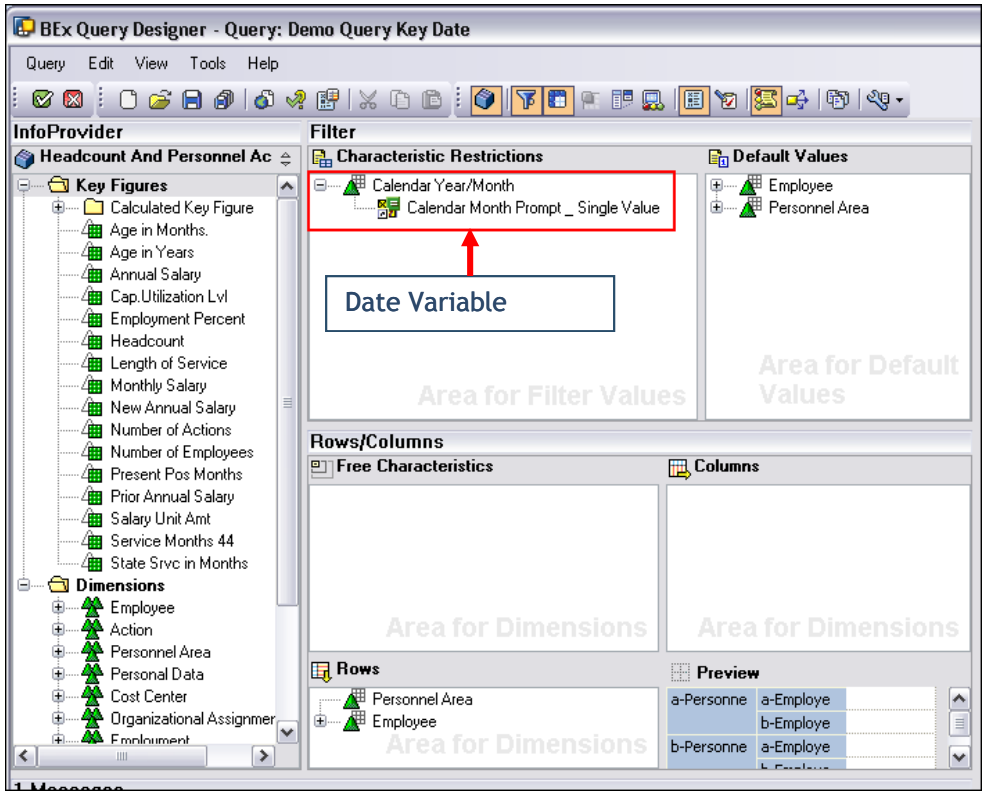


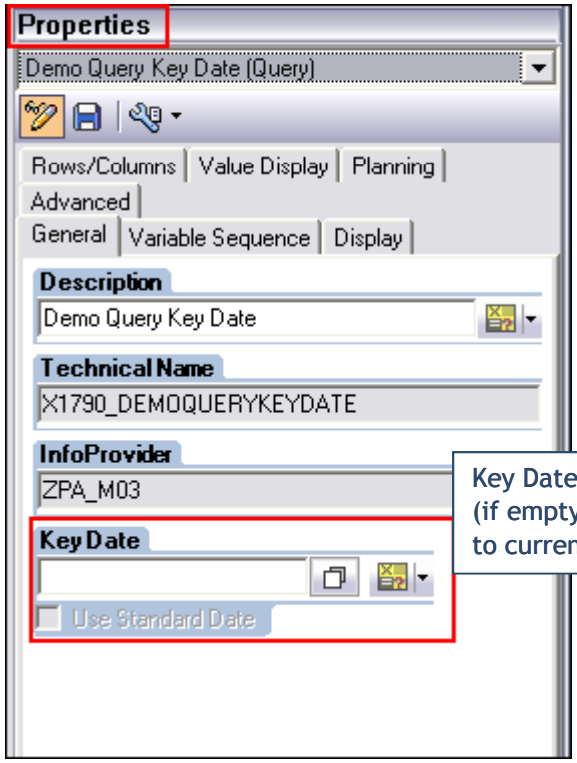
Key Date

The **Key Date** represents the "as of" date for Attributes. Key Date is set from the Query Property settings of an ad hoc query.

Attributes and Characteristics in the query could report two different time periods when a Date Characteristic is used with a variable.

- Characteristics in the query will be "as of" the date value input by the user in the Date Variable.
- Attributes in the query will be "as of" the Key Date set in the query properties (if nothing is entered, the Key Date will default to the current date).

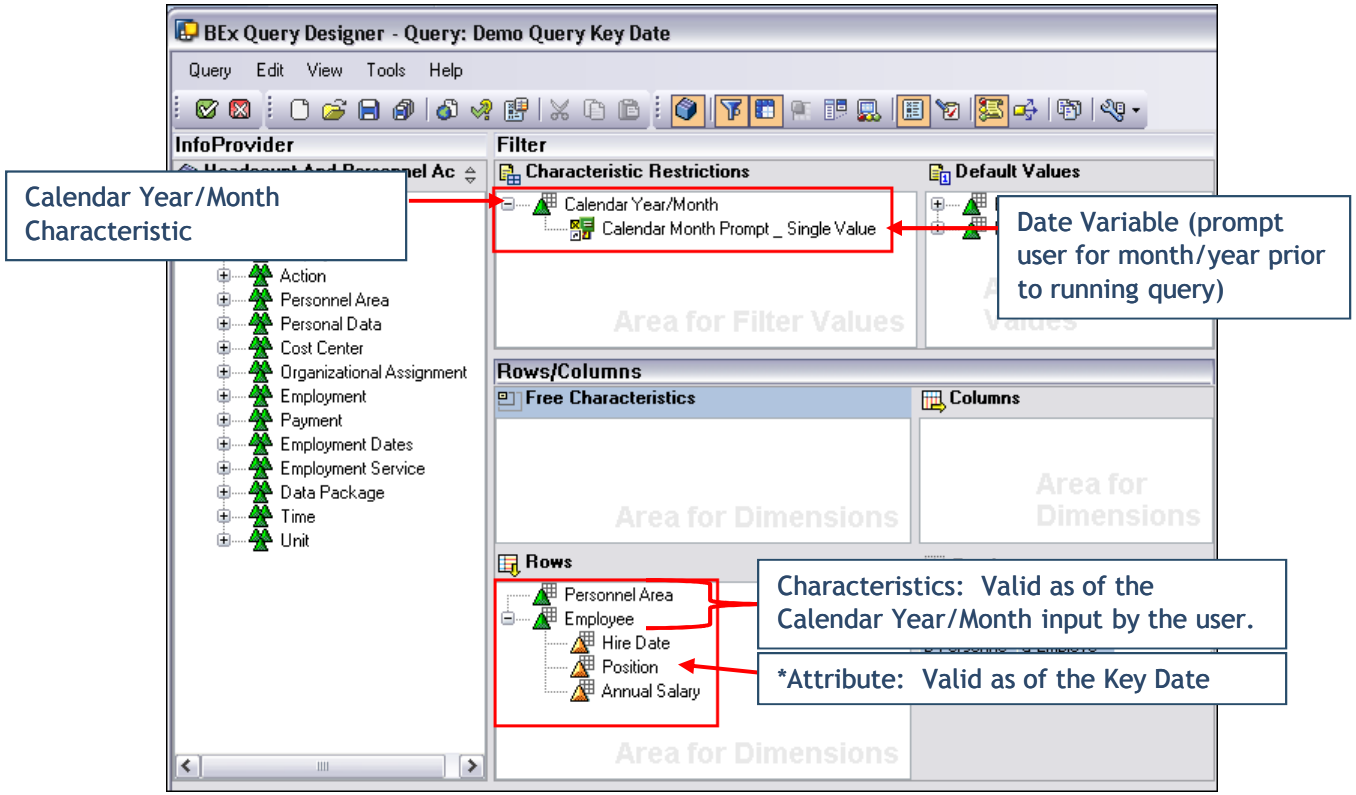




Key Date

The example below shows InfoObjects of an ad hoc query that are related to Key Date.

- Attributes in the query results will be reported by the date values of the Key Date in the ad hoc query Properties. If the Key Date is left empty, the Key Date will default to the current date.
- If a Date Variable is added to a Date Characteristic in the query, Characteristics in the query results will be reported by the date input by the user from the Date Variable.



*Attributes can be identified by the Technical Name: An Attribute includes the Characteristic Technical Name, followed by an underscore (_) and the Attribute Technical Name

Key Date

To ensure Attributes and Characteristics report the same time periods in the query results, the following options are available:

1. **Do not use a Date Variable**
   If a Date Variable is not added to an ad hoc query, the Attributes and Characteristics will be valid as of the current date. The Key Date does not need to be set since it defaults to the current date.
2. **Manually set Key Date**
   The Key Date can be manually set from the Query Property settings. If the Key Date is manually set, the value from the Key Date in the Query Property settings will be used each time the query is run.

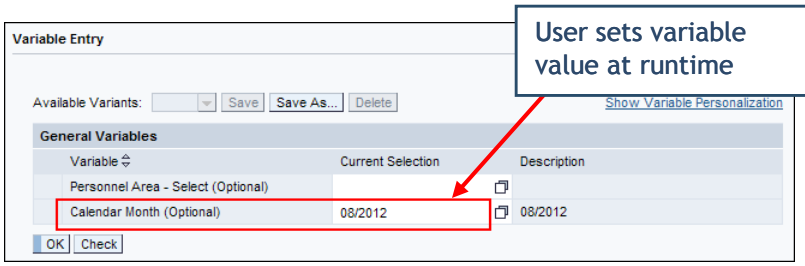
   If a variable value is input at query runtime:

   - the value from the Key Date in the Query Property settings will be used for Attributes.
   - the value from the variable will be used for Characteristics.

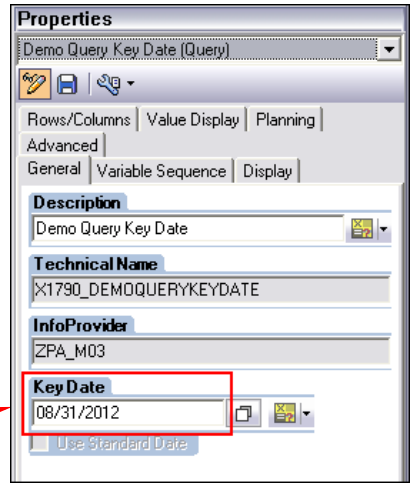
   The following page will show two examples of manually setting the Key Date using a Calendar Year/Month variable and a Calendar Day variable.

Key Date

The following example uses the “Calendar Month (Optional)” variable to show how the Key Date could be set if the calendar month is set to 8/2012:

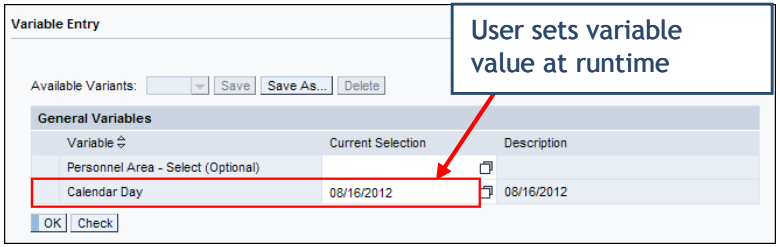


Example: Calendar Month (Optional) variable for 8/2012

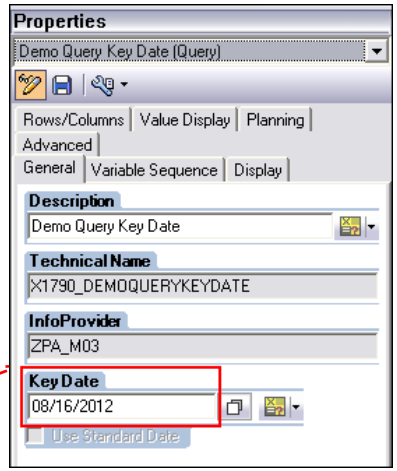


Example: Set Key Date property to the last day of the month selected from the Variables prompt – 8/2012

The following example uses the “Calendar Day” variable to show how the Key Date could be set if the calendar day is set to 8/16/2012:



Example: 0CALDAY (OPTIONAL) variable for 8/16/2012



Example: Set Key Date property to the same day of the day selected from the Variables prompt -8/16/2012

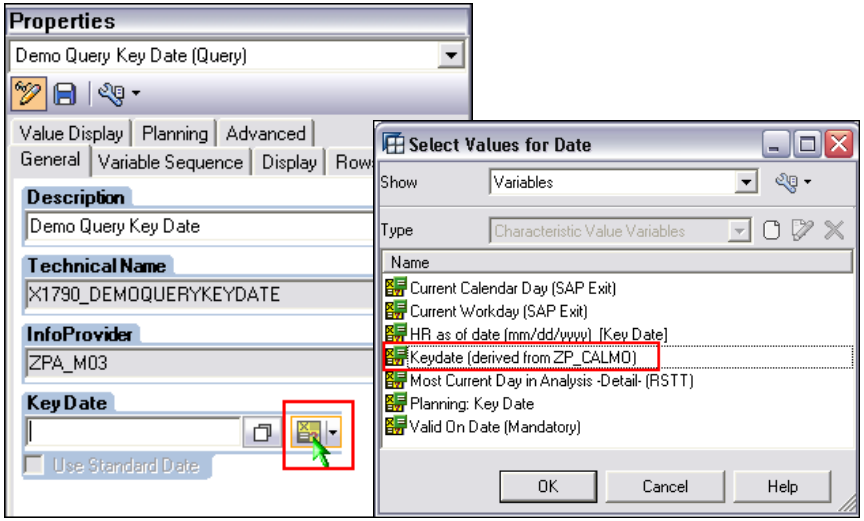
Key Date

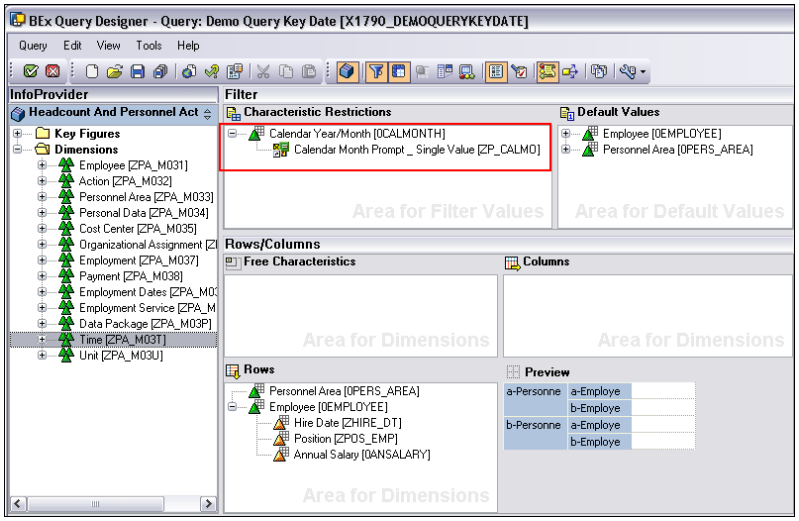
3. **Use a Key Date Variable**
   The Key Date can be set to automatically match what the user enters into the date variable by using the Key Date variable “Key Date for ZP_CALMO”.

   The “Key Date for ZP_CALMO” Key Date variable is used with the Date Variable “Calendar Month Prompt – Single Value” (ZP_CALMO) variable. Using both of these variables ensures that Characteristics and Attributes data is being pulled from the same time period.

If a date variable value is input at query runtime:

- the value from the “Key Date for ZP_CALMO” variable for Query Key Date will automatically match what the user enters into the Date Variable.
- the value from the “Calendar Month Prompt – Single Value (ZP_CALMO)” variable will be used for Characteristics.
- the value from the “Keydate (derived from ZP_CALMO)” variable will be used for Attributes.

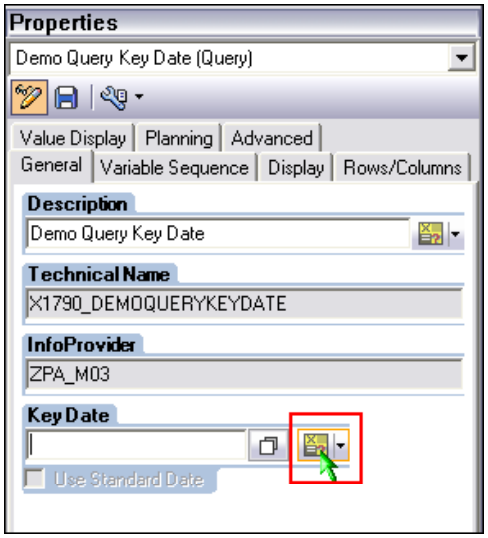


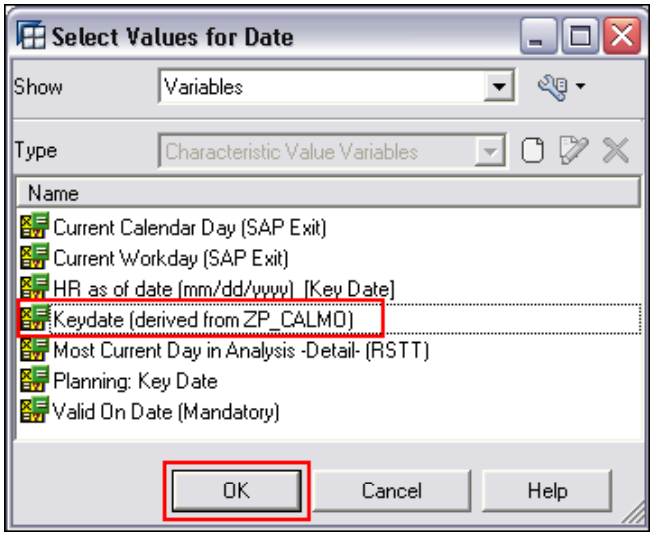


Key Date

To set the Key Date property to the “Key Date for ZP_CALMO” variable:

1. In the Properties box for the Query, click the variable icon in the Key Date section.
2. In the Select values for Date, select “Keydate”.
3. Click OK.





Result: Key Date variable is added.